Technical Specifications

I. GENERAL CONDITION

The Work generally consist of furnishing of all labor, materials and equipment required to carry out and complete the ***Repair of PTB, Back-up Area, Gates and Welcome Arch, Port of Lubang, Occidental Mindoro,*** in accordance with the contract drawings and in conformity with these specifications.

PLANS AND SPECIFICATIONS

All drawings, whether in small scale or detailed, are intended to correspond with specifications to form part thereof and the contract documents. Where figures are given, they are to be followed in preference to measurement by scale. Anything shown on the drawings but not indicated in the specifications or vice-versa or anything not expressly set forth in either but which is reasonably implied, shall be furnish and installed as though specifically shown and mentioned in both, without extra cost to PPA.

II. SCOPE OF WORKS

1.00 General Expenses

1.01 Mobilization, Demobilization and Cleaning Up

The Contractor shall mobilize and put into work all personnel, plant, and equipment required to undertake the works. The minimum equipment required to be mobilized at site are the following:

	Equipment Description	*Quantity*
1	Elf (Pick up Truck)	One (1) Unit
2	Electric Grinder	Two (2) Units
3	Electric Drill	One (1) Unit
4	Chipping Gun	Two (2) Units
5	Scaffoldings	One (1) Unit
6	Jackhammer w/ compressor	One (1) Unit
7	Dump Truck (6.0 cu.yd.)	Two (2) Units
8	Oxy/Acetylene Cutting Outfit	One (1) Unit
9	Concrete Cutter, 5hp	One (1) Unit
10	Backhoe (0.40cu.m. 91hp)	One (1) Unit
11	Bar Cutter (25mm bar dia. max)	One (1) Unit
12	One Bagger Mixer	Two (2) Units
13	Concrete Vibrator	Two (2) Units
14	Wheel Mounted Backhoe (0.40 cu.m., 95hp) with Breaker	One (1) Unit
15	Welding Machine (400A)	Two (2) Units
16	Road Grader, 135hp	One (1) Unit
17	Walk Behind Vibratory Roller(8.0hp, 650-700mm width; 20kN)	One (1) Unit
18	Air Portable Compressor (200cfm)	One (1) Unit

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2.0 Back-up Area

2.01 Demolish and Dispose Existing Structures.

The work includes the furnishing of all labor and equipment required to carry out the demolition/dismantling and turn-over of dismantled structures/facilities and as instructed by the PPA Engineer.

Waste materials shall be hauled and dumped in the area designated by the engineer/PPA representative while salvaged materials shall be turned over to the Authority.

2.02 Supply, Place and Compact Aggregate Sub-base & Base Course Materials

The work includes the furnishing of all labor, equipment and materials necessary for the placing and compaction of sub-base and base course materials for concrete pavement as shown on the drawings or as directed by the PPA Engineer.

Aggregate base course materials shall be natural gravel or crushed stone of maximum size of 19 mm. It shall be clean and free from vegetable matters lumps or balls of clay and other deleterious substances. The material shall be of such nature that it can be compacted readily to form a firm and stable base.

The base course bedding shall be laid according to its prescribed thickness and width as indicated on the Drawings and/or as directed by the PPA Engineer.

Placing of pavement concrete shall not be allowed unless compaction requirements have been complied with as directed by the PPA Engineer.

2.03 Supply and Install RSB for Concrete Pavement

The work shall consist of the supply and installation of RSB for concrete pavement in accordance with the sizes, number and shape of RSB indicated on the Drawings and in the approved bar cutting schedule.

Steel reinforcement used shall have deformed surfaces and shall conform to ASTM as follows:

16 mm Ø and above – ASTM 305, Min. Yield Strength of 414 MPa

12 mm Ø and below – ASTM A615-74a, Min. Yield Strength of 275 Mpa

Reinforcement shall be free of loose or flaky rust and mill scale, or coating and any other substance that would reduce or destroy the bond with concrete. Wire brushing of the concrete may be required before fixing in order to achieve the required condition. Reinforcement shall not be bent or straightened in a manner injurious to the steel or concrete. The use of heat to bend or straighten reinforcement shall not be permitted. Bars with developed cracks or splits shall be rejected and replaced.

Splices and overlapping in reinforcement where applicable shall conform to current standards and accepted engineering practice. Lap lengths shall not be less than 40 times the reinforcing bar diameter or as shown on the drawings or otherwise directed by the PPA Engineer. All laps shall be staggered or made at points where steel stress has fallen to less than half the allowable stress. Where lap shall not be staggered or be made at points of reduced stress, lap length shall be increased by 30%.

2.04 Supply and Place 3500 psi Concrete Pavement

The work shall include but not limited to the furnishing of all labor, materials, equipment and incidentals necessary to complete the supply and placing of 3500 psi concrete pavement.

Concrete

The work shall include but not limited to the supply and placing of concrete inclusive of transport in accordance with these specifications and where shown on the Drawings.

Specifications of the materials comprising the concrete mixture shall conform to the following:

Cement – the cement to be used shall be ordinary Portland cement, ASTM Type 1 designation C150

Fine Aggregate – for concrete and mortar shall be clean and complying with ASTM C33 specifications for concrete aggregates. The sand shall come from approved sources and sand which in the opinion of the PPA Engineer has become contaminated shall be rejected and removed from site.

Coarse Aggregate – shall comply with ASTM C33 specification. It may either be natural gravel or stone crushed to the desired size and shall only be obtained from approved quarries.

Water – clean fresh potable water shall be used for the mixing of all concrete and mortar mixtures. Sea water shall not be used at any time.

Concrete mixer shall be stationary mixer i.e. one bagger mixer. The mixer must be capable of combining the materials into a uniform mixture and of discharging this mixture without segregation.

Concrete shall be handled from one bagger mixer, placed to final deposit in a continuous manner, as rapidly as practicable and without segregation or loss of ingredients until the activity of placing concrete is completed.

Prior to placing of concrete, debris, dirt and other foreign materials shall be removed from the interior of the forms and from inner surface of mixing equipment. Temperature steel reinforcing bars shall be secured in position and shall be inspected and approved by the PPA Engineer before placing the concrete.

Ideally, the temperature of concrete during the period of mixing, transport and placing should not be more than 32º C. Where cold joints tend to form or where surfaces set and dry too rapidly or plastic shrinkage cracks tend to appear, concrete shall be kept moist by fog sprays, or other approved means, applied shortly after placement and before finishing.

Where applicable, immediately after placing, each layer of concrete shall be compacted by internal concrete vibrators supplemented by hand spading, rodding and tamping as necessary.

Concrete shall be protected adequately from injurious action by sun, rain, flowing water and mechanical injury and shall not be allowed to dry out from the time it is placed until the expiration of the minimum curing periods specified herein. Curing shall be accomplished by moist curing or by application of liquid membrane forming compound.

As the work progresses, cylinder samples shall be taken and tested in accordance with standards for testing of concrete cylinder samples. One set of three cylinders shall be sampled for every 50 cu.m. of concrete placed or at least one set shall be made for each day of concrete pouring. Tests will be made at 7 and 28 days from time of sampling. The average of the strengths of the three cylinders tested shall not be lower than the specified compressive strength of 3,500 psi.

2.05 Provision of Construction Joint on Pavement

The work includes the furnishing of all labor and equipment required to carry out the cutting of pavement, application of asphalt filler for construction joint on pavement as directed by the PPA Engineer.

3.00 Passenger Terminal Building

3.01 Painting Works

Surface Preparation and Repainting of Walls, Ceiling and Roofing

The work includes the furnishing of all labor and equipment required to carry out the painting of walls, ceiling and roofing including surface preparation as indicated on the Drawings and/or as directed by the PPA Engineer.

Materials to be used

1. Elastomeric Paint (Ready mixed) for exterior concrete/masonry & hardiflex wall/ceiling surface.
2. Anti-Bacterial, Odorless Paint (Ready mixed) for interior concrete/masonry & Hardiflex wall surface.
3. Epoxy Primer with Epoxy Reducer (gray)
4. Epoxy Paint
5. Roof Guard
6. Cementitious Waterproofing Compound (20kg)

All painting works shall be done under conditions which shall not jeopardize the appearance or quality of the painting in any way. The

Engineer shall have the right to reject all material such as high solid modified epoxy paint and polyurethane finish paint or work that is unsatisfactory, and require the replacement of either or both at the expense of the Contractor.

The Contractor shall endeavor to protect the work of others during the time repainting work is in progress. The Contractor shall be responsible for any and all damage to any other work in the course of his painting job. Protective coverings shall be used to protect floors, fixtures and equipment while painting; care shall be exercise to prevent paint being spattered unto surfaces which are not painted.

WORKMANSHIP

All painting work shall be first class and in accordance with the best standard and practices of the trade.

The Contractor shall examine carefully all surfaces to be painted and before beginning any of his work shall make sure that the work of other trades has been installed in a workman like condition ready to receive paint. Metal surfaces shall be clean, dry, and free from mill scale, rust, grease, oil or any other substance which could affect the quality of the painting.

Paint shall be applied at proper consistency and each coat shall be brushed evenly free of brush marks, sags, and runs. Care shall be exercise to avoid lapping of paint on glass or hardware. Paint shall be sharply applied to require lines. Finish paint surfaces shall be free from defects or blemishes. Surfaces from which such paint cannot be removed satisfactorily shall be painted or repainted as required to produce a finish satisfactorily to the Engineer.

Succeeding paint coatings shall be applied only when the previous coat is hard and dry.

All painting materials shall be used in strict accordance with manufacturers' directions, spread or flowed on smoothly with proper film thickness and without runs, sags, skips or other defects.

PREPARATION OF PAINT

Paint containers shall be delivered to the job site in manufacturer's unopened containers and shall be opened only required for use. Paint shall be mixed only in the designated room or space in the presence of the Engineer or his representative. Paint shall be thoroughly stirred or agitated to uniformly smooth consistency suitable for proper application. Unless otherwise specified or approved, no materials shall be reduced, changed, or use except in accordance with manufacturer's label or tag on container. In all cases, paint shall be prepared and handled in a manner to prevent deterioration and inclusion of foreign matter.

PREPARATION OF SURFACES

All surfaces shall be free from dirt, dust, oil grease, efflorescence, loose cement, chalk and other deleterious matter shall be removed and surface roughened when necessary to insure good paint adhesion. The method of surface preparation shall be left to the discretion of the Contractor, but results obtained shall be satisfactory to the Engineer.

All holes, cracks and depression shall be neatly filled with patching plaster, mixed and applied to match existing plaster. Patches shall be sanded flush and smooth and properly sealed before applying prime coat.

For metal, dirt, weld splatter, rust, scale and other contaminants shall be removed by scraping, wire brushing and sanding as required. Oil and grease shall be removed with mineral spirits or appropriate solvent.

3.02 Doors and Windows

3.02.1 Dismantling and Turnover of Damaged Doors and Windows

The work includes the furnishing of all labor and equipment required to carry out the dismantling and turnover of damaged doors and windows as instructed by the PPA Engineer.

Waste materials shall be hauled and dumped in the area designated by the engineer/PPA representative while salvaged materials shall be turned over to the Authority.

3.02.2 Supply, Fabricate and Install Doors and Windows

The work includes the furnishing of all labor and equipment required to carry out the supply, fabrication and installation of doors and windows as instructed by the PPA Engineer.

Materials to be used

1. (W-1) Fixed Glass Window on Aluminum Frame (4.0 x 1.90m)
2. (W-2) Aluminum Casement Window (2.70 x 1.60m)
3. (W-3) Aluminum Casement Window (1.80 x 1.60m)
4. (W-4) Aluminum Casement Window (2.70 x 1.0m)
5. (W-5) Aluminum Awning Window (2.70 x 1.00m)
6. (W-6) Aluminum Awning Window (1.80 x 1.60m)
7. (W-7) Aluminum Awning Window (0.90 x 1.00m)
8. (W-8) Fixed Glass Window on Aluminum Frame (3.60 x 1.20m)
9. (W-3a) Fixed Glass Window on Aluminum Frame (1.80 x 1.60m)
10. (D-1) Swing Glass Door on Aluminum Frame (3.60 x 2.50m)
11. (D-1a) Swing Glass Door on Aluminum Frame 4.00 x 2.50m)
12. (D-2) Swing Glass Door on Aluminum Frame (0.80 x2.10m)
13. (D-3) Paneled Door (0.90 x 2.10m) w/ acc.
14. (D-4) Paneled Door (0.80 x 2.10m) w/ acc.
15. (D-5) Flush Type Door w/ Louver (0.70 x 2.10m) w/ accessories
16. (D-6) Heavy duty PVC Door (0.60 x 1.80m) w/ accessories
17. (D-7) Heavy duty PVC Door (0.80 x 2.10m) w/ accessories

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18. Heavy duty door closer
19. Heavy duty door knob

All glass and aluminum works shall be done by experienced/qualified workers.

3.03 Tile Works

3.03.10 Removal/Demolish and Disposal of Existing Tiles

- Refer to Item 2.01 for specification of demolition and turn-over of salvaged materials.

3.03.20 Supply and Installation of Tiles

The work shall include but not limited to the furnishing of all labor, materials, equipment and incidentals necessary to complete the supply and installation of tiles as indicated on the drawings and in accordance with the approved manufacturer's recommendations and as directed by the PPA Engineer.

Materials to be used shall conform to the following:

- 0.60m x 0.60m Porcelain Tiles
- 0.30m x 0.30m Unglazed Tiles
- 0.30m x 0.35m Glazed Tiles
- Super Black Granite Solid Panel Countertop

Tiles shall be firmly laid on 1:2 cement mortar and the joint shall be filled with white cement paste. It shall be thoroughly soaked to water before using and shall be laid to the correct levels and grade upon installation and drying. It shall be carefully wiped and cleaned.

3.04 Plumbing Works

3.04.01 Dismantling of Damaged Plumbing Fixture

- Refer to Item 2.01 for specification of demolition and turn-over of salvaged materials.

3.04.02 Supply and Install Plumbing Fixtures and Fittings Including Repair of Waterlines.

The work shall include the furnishing of all labor, materials, equipment and other incidentals necessary to complete the supply and installation of new plumbing fixtures and fittings including repair of water lines as indicated on the drawings and/or as directed by the PPA Engineer.

The contractor shall submit for approval of the PPA Engineer, brochures/manuals of plumbing materials, fixtures and its accessories to be installed which shall be reviewed by the PPA Engineer. If found satisfactory and in accordance with the standard requirements of PPA,

approval shall be given, subject however, to the standard tests as deemed necessary should pass prior to their delivery at site.

The newly acquired Materials and Fixtures to be used shall be brand new and shall conform to the following requirements:

1. Waterless Urinal
2. Tabletop Basin Lavatory w/ Heavy Duty Pop-up Faucet
3. Pedestal Sink Lavatory w/ Heavy Duty Faucet
4. Water Closet Including Accessories (L745 x W380 x L825 mm)
5. Water Closet Including Accessories (L760 x W410 x H760 mm)
6. Faucet Heavy Duty
7. Bidet Spray, Heavy Duty for all water closets
8. Tissue and Soap Holder
9. Minimalistic in Wall Bath Shower Fitting
10. Stainless Wall Mounted Clothes Rack, Heavy Duty
11. Stainless Kitchen Sink w/ Strainer and Accessories
12. Swivel Spout 360° High-Arc Kitchen Sink Faucet & Accessories
13. Stainless Floor Drain

Upon delivery at site but before installation, all plumbing fixtures and its accessories shall be inspected by the PPA Engineer to determine their physical conformance with PPA requirements as to dimensions, type, make, markings and acceptance tolerances. Fixtures not conforming to PPA requirements shall be rejected and replaced.

The Contractor shall guarantee fixtures and its accessories against any defects that are attributable to faulty design and manufacture and shall also guarantee their performance under normal working conditions. The guarantee shall be for a minimum period of 12 months from the date of the issuance of the Taking-Over Certificate of the Works. During the period of guarantee, repairs and replacement of defective fixtures and/or material shall be carried by the Contractor at his own expense.

All plumbing works shall be done and supervised by experienced plumber and in accordance to its requirements.

3.05 Electrical Works

Installation/Replacement of Dilapidated Lightings and Electrical Fixtures Including Dismantling & Turnover

The work shall include furnishing of all labor, materials and equipment necessary to complete the installation/replacement of dilapidated lightings and electrical fixtures including dismantling & turnover as shown on the drawings and/or as directed by the PPA Engineer.

The contractor shall submit for approval of the PPA Engineer, brochures/manuals of the following materials listed below to be installed which shall be reviewed by the PPA Engineer. If found satisfactory and in accordance with the standard requirements of PPA, approval shall be given, subject however, to the standard tests as deemed necessary which the proposed Electrical Fixtures should pass prior to their delivery at site.

Materials to be used shall be:

1. LED Ceiling Recessed Type Downlight (Daylight 15W); (139 sets)
2. LED External Downlight at Diecasting Aluminum Casing Ø 125 x 125mm (18W); (11sets)
3. Rangehood 60cm Dual Motor
4. Switch Heavy Duty

Upon delivery at site but before installation, all Electrical accessories shall be inspected by the PPA Engineer to determine their physical conformance with PPA requirements as to dimensions, type, make, markings and acceptance tolerances. Electrical Fixtures not conforming to PPA requirements shall be rejected and replaced.

The Contractor shall guarantee all Electrical accessories against any defects that are attributable to faulty design and manufacture and shall also guarantee their performance under normal working conditions. The guarantee shall be for a minimum period of 12 months from the date of the issuance of the Taking-Over Certificate of the Works. During the period of guarantee, repairs and replacement of defective fixtures and/or material shall be carried by the Contractor at his own expense.

Testing and Commissioning

All feeder and branch circuit wiring shall be tested for circuit continuity and shall be tested to assure that the wiring system is free from short circuits, accidental grounding of other defects prior to energizing at normal system operating voltage.

After the contractor has assured himself that the wiring system are free of faults, the contractor shall then energize the system from their normal power source and confirm that all system are operational as required by the contract documents, prior to final inspection.

At a specific time which shall be determined by the Electrical Engineer, the contractor shall demonstrate that the entire electrical system is operational and will function as required prior to final project acceptance.

Guarantee and Certificates

Upon completion and before final acceptance of the work, the contractor shall furnish the Engineer a written guarantee stating that all works executed are free from defects on all materials, equipment, fixtures devices and workmanship for a period of one year from the date of written acceptance of the project. Any works of major materials that becomes defective during the period shall be replaced by the contractor at its own expense in manner satisfactory to the Engineer.

The work shall consist of testing and commissioning of electrical works.

- Refer to Item 2.01 for specification of dismantling and turn-over of salvaged materials.

3.06 Finishing Works

Supply and Place Finishing Touches for Ceiling, Stair Tread Edging, Kitchen Cabinet and Combination Blinds.

The work includes the furnishing of all labor, equipment and materials necessary for the supply and place finishing touches for ceiling, stair tread edging, kitchen cabinet and combination blinds as shown on the drawings or as directed by the PPA Engineer.

Materials to be used

1. Tempered Glass Hob with Two Gas Burner
2. Window Combination Blinds
3. Compact Laminated Urinal Partition (wall hang/straight edge - 2sets-0.43m x 0.75m)

4.00 Welcome Arches, Gates and Guard House

4.01 Demolition, Disposal and Turn-over of Existing Gate & Column for Upgading & Widening Including Portion of Fence and Excavation

- Refer to Item 2.01 for specification of demolition, disposal and turn-over of salvaged materials.

4.02 Supply, Fabrication/Installation of Reinforcing Steel Bars of Welcome Arch & Fence

The work shall consist of the supply, fabrication/installation of reinforcing steel bars of welcome arch & fence in accordance with the sizes, number and shape of RSB indicated on the Drawings and in the approved bar cutting schedule.

Steel reinforcement used shall have deformed surfaces and shall conform to ASTM as follows:

16 mm Ø and above – ASTM 305, Min. Yield Strength of 414 MPa

12 mm Ø and below – ASTM A615-74a, Min. Yield Strength of 275 Mpa

Reinforcement shall be free of loose or flaky rust and mill scale, or coating and any other substance that would reduce or destroy the bond with concrete. Wire brushing of the concrete may be required before fixing in order to achieve the required condition. Reinforcement shall not be bent or straightened in a manner injurious to the steel or concrete. The use of heat to bend or straighten reinforcement shall not be permitted. Bars with developed cracks or splits shall be rejected and replaced.

Splices and overlapping in reinforcement where applicable shall conform to current standards and accepted engineering practice. Lap lengths shall not be less than 40 times the reinforcing bar diameter or as shown on the drawings or otherwise directed by the PPA Engineer.

All laps shall be staggered or made at points where steel stress has fallen to less than half the allowable stress. Where lap shall not be staggered or be made at points of reduced stress, lap length shall be increased by 30%.

4.03 Supply and Place 3500 psi Concrete for Welcome Arch Structural Members & Restoration of Fence Including Form Works

The work shall include but not limited to the furnishing of all labor, materials, equipment and incidentals necessary to complete the supply and placing of 3500 psi concrete.

Concrete

The work shall include but not limited to the supply and placing of concrete inclusive of transport in accordance with these specifications and where shown on the Drawings.

Specifications of the materials comprising the concrete mixture shall conform to the following:

Cement – the cement to be used shall be ordinary Portland cement, ASTM Type 1 designation C150

Fine Aggregate – for concrete and mortar shall be clean and complying with ASTM C33 specifications for concrete aggregates. The sand shall come from approved sources and sand which in the opinion of the PPA Engineer has become contaminated shall be rejected and removed from site.

Coarse Aggregate – shall comply with ASTM C33 specification. It may either be natural gravel or stone crushed to the desired size and shall only be obtained from approved quarries.

Water – clean fresh potable water shall be used for the mixing of all concrete and mortar mixtures. Sea water shall not be used at any time.

Concrete mixer shall be stationary mixer i.e. one bagger mixer. The mixer must be capable of combining the materials into a uniform mixture and of discharging this mixture without segregation.

Concrete shall be handled from one bagger mixer, placed to final deposit in a continuous manner, as rapidly as practicable and without segregation or loss of ingredients until the activity of placing concrete is completed.

Prior to placing of concrete, debris, dirt and other foreign materials shall be removed from the interior of the forms and from inner surface of mixing equipment. Temperature steel reinforcing bars shall be secured in position and shall be inspected and approved by the PPA Engineer before placing the concrete.

Ideally, the temperature of concrete during the period of mixing, transport and placing should not be more than 32º C. Where cold joints tend to form or where surfaces set and dry too rapidly or plastic shrinkage cracks tend to appear, concrete shall be kept moist by fog

sprays, or other approved means, applied shortly after placement and before finishing.

Where applicable, immediately after placing, each layer of concrete shall be compacted by internal concrete vibrators supplemented by hand spading, rodding and tamping as necessary.

Concrete shall be protected adequately from injurious action by sun, rain, flowing water and mechanical injury and shall not be allowed to dry out from the time it is placed until the expiration of the minimum curing periods specified herein. Curing shall be accomplished by moist curing or by application of liquid membrane forming compound.

As the work progresses, cylinder samples shall be taken and tested in accordance with standards for testing of concrete cylinder samples. One set of three cylinders shall be sampled for every 50 cu.m. of concrete placed or at least one set shall be made for each day of concrete pouring. Tests will be made at 7 and 28 days from time of sampling. The average of the strengths of the three cylinders tested shall not be lower than the specified compressive strength of 3,500 psi.

4.04 Masonry and Plastering Works

Installation of CHB at Upper Portion of Arch and Mouldings Including Plastering of Structure

The work includes the furnishing of all labor and equipment required to carry out the masonry and plastering works as shown on the Drawings and as directed by the PPA Engineer.

Concrete Hollow Blocks

CHB shall be ready made products of approved fabricator regularly engaged in the production of CHB for a period of five years or more.

6” and 4” CHB shall be of standard manufacture, machine vibrated, with fine and even texture and well-defined edges.

CHB upon delivery to the site shall be stacked under a shed or otherwise protected from exposure to the weather and from contact with soil. Care shall be exercised in handling the blocks to avoid chipping and breakage. Damaged blocks shall be rejected and removed from the site immediately.

Preparation of Surfaces plastering works

All surfaces shall be cleaned and projections, dust, loose particles and other materials which would prevent good bond shall be removed.

All surfaces shall be thoroughly wetted before plastering.

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4.05 Painting of Concrete Smooth Surface and Installation of Electrical Conduits, Wires and Lights

The work shall include furnishing of all labor, materials and equipment necessary to complete the painting of concrete smooth surface and installation of electrical conduits, wires and lights as shown on the drawings and/or as directed by the PPA Engineer.

- Refer to Item 3.01 for specification of painting works

4.06 Fabrication of Steel Gate, Hinges and Supports including Painting of Epoxy Enamel Top Coat

The work shall include furnishing of all labor, materials and equipment necessary to complete the fabrication of steel gate, hinges and supports including painting of epoxy enamel top Coat as shown on the drawings and/or as directed by the PPA Engineer.

Materials to be used shall be:

- 2" x 4" x 2.0mm Galvanized Iron Tubular
- 12mm Square Bars (Standard)
- Heavy Duty Fabricated Hinges (8sets)
- Heavy Duty 4"Ø Ball Caster Wheel

The work shall include the furnishing of all labor, materials, equipment and other incidentals necessary to complete the replacement/ fabrication & installation of portion of covered walk post/frame and all purlins in accordance with the sizes, distances and design shown on the Drawings and as directed by the PPA Engineer.

The contractor shall submit to the PPA Engineer the shop drawing (as required) of the fabrication and installation of covered walk enclosure to be installed for his review and approval.

All welding works shall be done by experienced/qualified welders. The welding machine to be used shall be capable of providing the required current to each welding point without appreciable fluctuations.

Surfaces to be welded shall be free from loose scale, slug, rust, grease, paint and other foreign material except that mill scale which withstands vigorous wire brushing may remain. Joint surfaces shall be free from fins and tears. Preparation of edges by gas cutting shall, wherever practicable, be done by mechanically guided torch.

- Refer to Item 3.01 for specification of painting works

4.07 Provision of Welcome Arch Signages

The work shall include furnishing of all labor, materials and equipment necessary to complete the supply and installation of welcome arch signages as shown on the drawings and/or as directed by the PPA Engineer.

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III. MEASUREMENT FOR PAYMENT

In accordance with Section II Scope of Works of this Technical Specifications, the pertinent items of work described therein and to be executed by the contractor shall be measured and paid for according to the following terms:

- All scope of works, activities shall be paid in accordance with the unit price for said item of works done/completed indicated in the Bill of Quantities (BOQ), plan and certified by the PPA Engineer.

IV. As-Built Drawings and Photographs

1.00 Photographs taken before, during and after completion of the project shall be submitted as part of the documentary requirements for the progress billing.

2.00 At the completion of the Project, the Contractor shall prepare three (3) sets of “As-built” Drawings which shall be submitted to the PPA, PMO-Mindoro as part of the documentary requirements for the formers final billing. The as-built drawings shall indicate therein all the original items of work, changes, deviations and additional work items (if any), undertaken by the contractor to complete the project. The as-built drawings shall bear the title block prescribed by the PPA and shall be signed by the contractor’s authorized representative prior to submission to PPA, PMO-Mindoro.

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Section VII.
Drawings

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Section VIII.
Bill of Quantities

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